

- Fig. 5. *Lagena marginata* (Walker and Jacob), var. *catenulosa*, nov. (p. 28):
a, lateral aspect (at *pp* are shown parasitic-alga-borings in the shell-flange); *b*, oral aspect. $\times 17$.
6. *Nodosaria* (*Dentalina*) *soluta*, Reuss, var. *subaculeata*, nov. (p. 3). $\times 10$.
7. *Biloculina tubulosa*, Costa (p. 7). An abnormal specimen with two apertures. $\times 16$.
8. *Amphistegina radiata* (Fichtel and Moll) (p. 45): *a*, lateral aspect; *b*, peripheral aspect. $\times 10$.
9. *A. radiata* (F. & M.) (p. 45). A transverse section showing the asymmetrical habit of growth in the successive layers of whorls, the non-tubulate umbonal centres, and the somewhat irregular overlapping of the whorl-layers on both sides of the shorter axis. $\times 14$.
10. *A. radiata* (F. & M.) (p. 45). Small portion of a median horizontal section of the test, showing at *a* two septa traversed by the canal-system; below this at *b* is the marginal cord of the preceding whorl with its canal-system. $\times 135$.
11. *A. hauerina*, d'Orbigny (p. 46). Part of a septum, showing interseptal canals at *a*. This is taken from a typical fossil specimen of *Amphistegina* from the Vienna Basin, for comparison with the recent form, *A. radiata* (F. & M.). $\times 520$.
12. *A. radiata* (F. & M.) (p. 45). One of the chambers of the peripheral whorl in a median horizontal section, enclosing a young individual consisting of two chambers. $\times 135$.

2. An Enumeration of the Hemiptera-Homoptera of the Island of St. Vincent, W.I. By P. R. UHLER. (Communicated by Dr. D. SHARP, F.R.S., F.Z.S., on behalf of the Committee for investigating the Flora and Fauna of the West-Indian Islands¹.)

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The Homoptera of St. Vincent, collected by Herbert H. Smith, constitute an assemblage of forms mostly small and neat, which offer a striking contrast to the large and showy insects that inhabit the regions of the South-American continent a few hundreds of miles away. It is not, however, to this nearest part of the continent that we must look for the source of distribution from whence this assemblage was derived. The Mexican character of the fauna seems unquestionable.

Fam. CICADIDÆ.

Genus PROARNA, Stål.

PROARNA HILARIS, Germ. Silb. Rev. Ent. ii. p. 69, 34.

Numerous specimens were collected at various localities in the island. The individuals are of different sizes, the males being

¹ [The Hemiptera-Heteroptera of St. Vincent have been described by Prof. Uhler in the P. Z. S. 1893, pp. 705-719, and 1894, pp. 156-160. The species of Membracidæ, described by Dr. Goding, and mentioned *postea* p. 57, form also part of the collections transmitted by the Committee to N. America for examination.—D. S.]

much smaller than the females. The fully-coloured and well-matured specimens are greenish, with the silvery pubescence and white bloom coating the surface thickly. Immature and freshly-excluded specimens have the costal margin and veins of the wing-covers rufous or yellowish and most of the body testaceous. The broad black stripe current from the head to base of pronotum is absent, or nearly so, in the pale varieties, as are also black bands from the femora and tibiæ. There is scarcely a substantial character now remaining to separate this species from *P. albida*. Oliv.; and now, as our collections are growing large, the species of this genus are becoming more comprehensive and less distinctly separable.

This small form inhabits also Jamaica, Cuba, San Domingo, and St. Thomas. The next size larger is found in Mexico and Central America.

PROARNA SQUAMIGERA, sp. nov.

Luteous or pale green, more or less clothed with scale-like, prostrate, silky pubescence, which readily rubs off. Head short, blunt, the vertex deeply grooved on the middle line, closely hairy, marked with a black band on the area of the ocelli, and sometimes with a black tubercle each side; the front almost flat on top and hairy, smooth, and yellow in the middle of this part, from each side of which a curved black stripe converges towards the middle and continues down to near the clypeus; the transverse grooves almost straight, but not quite symmetrical; cheek between the eye and front dark brown and coarsely wrinkled; clypeus smooth, pale, usually marked with a brown spot; the rostrum pale, tipped with piceous, reaching between the posterior femora; first and second joints of antennæ piceous black, excepting the ends, the following joints growing paler towards the tip. Pronotum narrowing anteriorly, curving well over the base of the head, having the sutures mostly black, and with an oblique black streak each side of the middle of the dorsal wedge, and sometimes with a double streak each side behind it; the lateral margin widely reflexed, and carried as a wide lobe much below the line of the eyes, the humeral angle broadly lobate and turned up; mesonotum smooth, very moderately convex, usually marked at base with four obconical black stripes, of which the two inner ones are most distinct and shorter; the space in front of the mesonotal cross wide, deep, and often infuscated, the cross quite prominent, short, and less deeply sinuated behind. Legs greenish, yellow when faded, usually with a black spot near the base and tip of the femora, and with the knees and end of tibiæ, more or less of the tarsi, and the tip of the nails blackish piceous. Wing-covers vitreous, tinged with green in the matured insect; the veins greenish, interrupted with dark brown on the apical series, the anastomosis at tip of costa marked with a black fork; base of the first forked vein back of this has a dark spot, and the next vein inward from this has also a dark spot; veins of the base of the

costal areoles each with a dark cloud, excepting the middle and inner ones; transverse border vein of the apex of the apical areoles, excepting the two outer ones, marked on the middle with a brown spot; the first apical areole long and wide, a little shorter than the third, and more than twice as long as the second, the second expanded at tip; the basal areole long, black at tip, and with the costal areole bordered above and below with black; apex of the clavus blackish. Breast invested all over with white flocculent matter accompanying the pubescence; the opercula are broad, in contact on the middle line, a little angularly curved behind, and the extero-posterior margin reflexed and almost sinuated. Venter smooth, powdered with white, the basal segment of male composed of two thick ribs, which are sinuous each side and triangularly prolonged at base to fit into the emargination between the opercula. Tergum pubescent, sometimes spotted with fuscous on the sides, and banded with dark brown on the borders of the incisures; the basal segment of male often broadly white each side.

Length to tip of venter, ♂ 22-23, ♀ 26-28 mm.; to tip of closed hemielytra 34-43 mm.; width of base of pronotum 9-11 mm.

This species was taken at two or three localities on the island. Several specimens were secured which show marked differences in the ground-colour and extent of dark marking. Much of this is, however, due to degree of maturity and condition of the specimen at the time of capture. These, together with *P. chariclo*, Walker, and the allied green species with more dilated pronotum from Cuba, San Domingo, and Colombia, form a chain of connection between *Odopea* and *Tympanoterpes*, Stål. The obliquity or curvature of the cross-vein of the second apical areole is too gradative to furnish a substantial separative generic character.

This species, although closely related to *P. chariclo*, Walk., should not be confounded therewith. Besides the expansion of the pronotum and its different marking in *P. chariclo*, it has the dots of the apical series of areoles next the ends of the longitudinal veins, and not on the cross-veins as in our species. In this new species the basal areole is broader, the opercula close in contact, and the basal segment of venter not single.

Fam. MEMBRACIDÆ.

The specimens of this family have not been sent to me for examination, and accordingly I can only judge of the value of the species described by Dr. Goding from a study of specimens secured in Grenada, Trinidad, and the Greater Antilles.

The following list includes all the species reported by Dr. Goding from the island:—

ENCHOPHYLLUM RILEYI, Godg. Canad. Ent. xxvi. 1893, p. 56.

Five individuals are recorded as having been collected in St. Vincent.

ACUTALIS TRIFURCATA, Godg. *Canad. Ent.* xxvi. p. 53.

Cited as from St. Vincent. Coll. H. H. Smith.

ACUTALIS APICALIS, Godg. *Canad. Ent.* xxvi. p. 53.

Reported as from the same island by the writer quoted above.

SPONGOPHORUS ALBOFASCIATUS, Godg. *Canad. Ent.* xxv. p. 54.

Also cited as from St. Vincent.

SPONGOPHORUS VEXILLIFERUS, Godg. *Canad. Ent.* xxv. p. 53.

Likewise cited as from St. Vincent.

BOLBONOTA BISPINIFERA, Godg. *Canad. Ent.* xxv. p. 55.

Reported as belonging to the collection made in St. Vincent by Mr. H. H. Smith.

MONOBELUS FASCIATUS, Fabr. *Ent. Syst.*, Suppl. p. 515. no. 33.

This is a very variable species which is widely distributed in the Antilles. I have examined specimens from Cuba, Jamaica, San Domingo, St. Vincent, and Grenada.

Fam. CERCOPIDÆ

TOMASPIS PICTIPENNIS, Stål, *Stettin. ent. Zeit.* xxv. p. 63

The more typical form of this species is common in Mexico in the vicinity of Orizaba.

Only one specimen is in the collection from St. Vincent, but several others are in that from the island of Grenada. It is more variable and abnormally coloured in these Lesser Antilles than we have seen it to be in Mexican specimens.

Fam. FULGORIDÆ.

DICTYOPHARA EMARGINATA, sp. nov.

Pale green, long oval, with the cephalic prolongation a little curved upwards, scarcely twice as long as the pronotum, a little curved on the sides, hardly wider at base than on the middle, with the upper surface flat, carinated on the outer margins and on the middle line, with the base of the middle carina forming a Λ , the tip subconical with curving sides; base of head triangularly emarginated; front with thick carinate margins and a prominent carina along its entire length; eyes a little angular, nearly bean-shaped, brownish when dried; rostrum reaching to the posterior coxæ. Pronotum short, triangularly produced into base of head, the base emarginated almost as acutely as the head, with the middle line interruptedly carinate. Mesonotum feebly convex, very strongly tricarinate. The posterior tibiæ with three spines exteriorly. Hemelytra almost opaque, with the costal margin broadly curved; the veins few and straight, with five long areoles

including the wide costal one, and no transverse veins in the ulnar series; twelve long narrow areoles in the apical series, most of which have three or four transverse veins towards the middle; the apex more transparent than the corium.

Length of body 5 mm.; width of pronotum $1\frac{1}{2}$ mm.; length to tip of wing-cover 7- $7\frac{1}{2}$ mm.

This species approaches nearest *D. cultellator*, Tweedie, but the head of the former is much shorter and wider, and the venation simple, not dense.

TANGIA ANGUSTATA, sp. nov.

Pale green, narrower than usual, the wing-covers slightly curving towards the base, with the costa almost straight from thence to the membrane. Head a little longer than wide, with the tip rounded, but hardly narrowed, the margins prominently reflexed, the middle line carinated, with its basal half triangularly divaricating; front long, the sides feebly sinuated and expanding somewhat triangularly before the tip, the middle line with a thick carina throughout; epistoma also carinate; rostrum reaching to the middle coxæ. Pronotum about half as long as the head, almost of the form of a horse-shoe, the ends tapering posteriorly, the middle line acutely carinate. Mesonotum long, distinctly carinate on the middle line, the apex subovate, and the base triangularly narrowed with the end truncate. Hemelytra with simple straight veins, the inner discoidal vein only forking beyond the middle; no transverse veins on the corium, the longitudinal veins all forked at tip to form the boundary of the membrane, the membrane tapering a little on the inner apical border; the veins and cross-veins numerous and rather close-set, more or less dusky in the matured individuals. Posterior femora with three spines besides the pair on the tip.

Length to end of venter $5\frac{1}{2}$ mm.; width of pronotum $1\frac{1}{2}$ mm.; length to tip of wing-covers 7 mm.

Two specimens were taken in St. Vincent, one of them on the windward side. They are precisely like others which were secured on the island of Grenada.

TANGIDIA, gen. nov.

Similar to *Tangia*, but with a broad shield-like head and less symmetrical venation to the corium. Head with the eyes as broad as the front of pronotum, the vertex a little longer than wide, subsemicircular in front, with the lateral margins stoutly reflexed; the central carina Λ -shaped, with the tip touching the apex and set in a sunken surface; front broad oval, nearly twice as long as its width, with reflexed margins and a carinate middle line. Pronotum somewhat horseshoe-shaped, almost triangular in front, and carried deep into the notch in the head, Λ -carinate in the middle, the lateral prolongations tapering narrow posteriorly; mesonotum much longer than wide, with carinate sides and middle line, the

posterior angles obliquely truncated. Hemelytra nearly three times as long as the width, translucent, the posterior margin straight; discoidal veins long, the middle one simple, the inner one forked behind the middle, the outer one twice forked next the membrane, the veins continuing this line across are oblique, and then straight in regular succession to the posterior margin; cells of membrane mostly quadrangular, longer than wide. Posterior tibiae with three spines behind the tip.

TANGIDIA ALTERNATA, sp. nov.

Pale fulvous, polished, broad, moderately flat. Head lined around the margins with white, and the triangle and oval reliefs of the sides of vertex also white; front pale yellow, the upper submargin black; eyes placed horizontally, long, oval, brown; rostrum extending to the middle coxæ. Raised margins and carinate line of both pro- and mesonotum whitish. Costal areole long, wide, terminating in an acute pterostigma of dark brown colour; veins pale testaceous, interrupted by dark brown, the brown of the membrane most conspicuous on the apical margin and cross-veins; wings a little tinged with fulvous at base, the veins darker at tip. Sides of thorax streaked with pale brown, and a darker line runs back from behind the eye. Legs pale yellow; knees a little infuscated, the tips of spines black, and a short dark streak appears beneath the posterior knee. Venter greenish, broadly bordered with red, segments of the tergum obscurely banded with rufous and bordered with pale yellow.

Length to tip of abdomen 4 mm.; width between wing-covers $1\frac{3}{4}$ mm.; width of expanded wings 10 mm.

Only one specimen of this neat insect was secured.

BOTHRIOCERA SIGNORETI, Stål.

Seven or eight specimens of the variety of this species, with the pale spot occupying most of the basal third of the corium, were collected at various localities on the island.

BOTHRIOCERA BICORNIS, Fabr.

Seven specimens of this form were collected at different points on the island. They differ in minor details of marking from Brazilian and North-American specimens. This species is found also in Texas, Florida, North Carolina, Maryland, and New Jersey. In the last two States it is found in midsummer upon grass-like plants in the cranberry marshes.

BOTHRIOCERA UNDATA, Fabr.

Ten specimens of several states of immature colouring are present in the collection from St. Vincent. I find no structural differences to separate these from the foregoing species; and several specimens are so immature as not to have developed a pattern of marking.

CATONIA, gen. nov.

Form of *Plectoderes*, and apparently related to that genus in general structure. Long subovate, with the hemelytra opaque throughout, almost straight, but feebly curved at base and apex, with the veins coarse and prominent. Vertex about half as wide as the pronotum, tapering a little towards the tip, a little longer than the large subglobular eyes, scooped out lengthwise and carinated, the tip more or less acutely curved and with the margin reflexed, arched above, base triangularly excavated, and carinate on the border; front long, carinated, widening towards the epistoma, and with curving reflexed sides, the reflexed border continued on the epistoma. Rostrum reaching to the posterior coxæ. Pronotum constituting a very narrow collar, triangularly excavated behind and prolonged into the triangular aperture of the head, the pleural part expanded into a wide rounded flap below the eyes. Mesonotum a little wider than long, sinuated each side in front, tricarinate, triangularly narrowing posteriorly, with the scutellum depressed and nearly equilateral triangular. Posterior tibiæ unarmed, excepting at tip, where the middle spine is much longer than the others. Veins of disk of corium simple and nearly straight, the radial vein forked behind the middle of the corium and the second ulnar also forked at nearly the same distance, the apical series of areoles forming a nearly symmetrical curve around the arc of the apex of membrane, but arrested in the inner angle by a long and wide, nearly straight areole; costal space most opaque, long, acute at tip, and bounded there by a small triangular cell. Antennæ composed of a large globular base, with a very fine bristle projecting from it.

CATONIA INTRICATA, sp. nov.

Fuscous, somewhat shaded with paler colour. Face a little paler than the body, minutely and closely speckled with fuscous, the carinated margin interrupted with fuscous; front a little longer than wide, slightly tapering at apex, prominently carinated on the lateral margins, and there more distinctly marked with pale dots; cheeks and pleural pieces marbled and speckled with fuscous and testaceous. Pronotum testaceous, dotted with fuscous. Legs smoke-brown, the anterior and middle tibiæ with a yellow band on the middle, besides others at base and tip, and on posterior tarsi. Mesonotum minutely dotted with testaceous. Hemelytra covered with minute pale granules, the costal area varied with testaceous, and sometimes tinged with rufous at tip, longitudinal veins interruptedly testaceous; the membrane paler, margined with fuscous, also with two arcuated brown clouds, the longitudinal veins brown and white at intervals, white at tip, the transverse veins white. Venter dull fuscous, with patches of white on the middle and sides.

Length to tip of abdomen 4 mm.; to end of hemelytra $5\frac{1}{2}$ mm.

One specimen was secured in the Petite Bordelle Valley, at an

altitude of 1600 feet above the sea. It was taken from foliage in a damp forest, October 6th. Other specimens were found at various points on the island, which are not recorded in any list accessible to me.

The generic name given above is derived from that of the great tract of land belonging to the Caton family in Maryland, where *Flata* (*Catonia*) *nava*, Say, occurs, and where another species, *Cixius* (*Catonia*) *cinctifrons*, Fitch, abounds in autumn upon the white hickory and oak trees.

CUBANA, gen. nov.

Abdomen more prismatic above and less flat than in *Catonia*, with the hemelytra opaque, and the membrane not bent inwards as in that genus. Head a little longer than the eyes, with the lateral keels highly arched above the surface of the vertex and front; the vertex deeply sunken, almost regularly quadrangular, with the middle keel more distinct in one species than in the other; front long and moderately wide, the side strongly carinate and curving, becoming widest at the clypeus, and the curve continued tapering to the tip, the middle carina exceptionally high, as much elevated as the lateral margins, complete to tip of clypeus. Pronotum unusually short, expanding into saddle-flaps each side inferiorly. Mesonotum with a tabular disk, which is much longer than wide, tricarinate, the outer carinæ spreading apart posteriorly, and behind this point the scutellum extends back in a triangle. Wing-covers growing very gradually wider towards the tip, bluntly rounded at tip; four long discoidal areoles running out to the oblique cross-veins, which form the base of the apical areoles; the costal area crossed by three oblique veins before reaching the nodal mark, this latter followed by about four curved veins before the apex is reached; areoles of apical series long, the fork connected with the middle vein longer than the others; basal areole small and narrow; wings with three forked veins and two transverse veins towards the tip. Posterior tibiæ destitute of spines before the tip.

The generic name here given is derived from Cuba, on which island these insects were first taken.

CUBANA TORTRIX, sp. nov.

Pale dull brown, moderately robust, with all the carinate lines and borders and tip of scutellum pale testaceous. Grooves of face blackish. Underside of body mostly pale testaceous. Legs testaceous, with the spurs of tibiæ and tips of tarsi piceous. Wing-covers shaded with pale brown, the veins mostly ivory-yellow; the cross-veins of costal area, an oval spot beyond the tip of the costa, almost encircled by a slender arc before and behind, the slender apical margin, a bent line crossing the membrane diagonally near its middle, a paler bent line across the middle of the corium, and a short stripe at the apex connected with the

margin posteriorly, brown, sometimes also a pale brown streak at base of corium and two or three traces on the postero-apical portion of the corium and membrane; wings smoky, with pale brown veins.

Length to tip of abdomen $3\frac{1}{4}$ – $3\frac{1}{2}$ mm.; width between wing-covers $1\frac{1}{4}$ mm.; expanse of wing-covers 10– $10\frac{1}{2}$ mm.

This beautiful little insect was found at Kingstown and at other places on the island, and at altitudes from 1500 to 2500 feet above sea-level.

A closely related species was sent to me many years ago from the island of Cuba by Dr. John Gundlach.

CUBANA IRRORATA, sp. nov.

Pale fulvous, more or less farinose posteriorly, both above and below. Head a little less oblique at the summit of the front than in the preceding species. Carinate lines of the head and thorax a little paler than the adjoining surface. The under surface paler than the upper. The mesonotum dark brown and the scutellum pale. Inferior margin of the thorax pale. Legs pale testaceous, with the tip of the tarsi piceous. Wing-covers mostly whitish, faintly tinged with brown towards the tip, the veins interrupted with brown, near the apex more distinctly streaked with black, and with a blackish dot near the inferior apical extremity; clavus with three dark oblique bands, the outer one of which is much wider than the others; near the base of corium are several faint streaks, followed on the middle by a bent band which touches a stripe on the lower border; the base of membrane is bounded by a wavy band which covers the white cross-veins; beyond this the membrane has several angular streaks near the upper margin, a diagonal band running back from the middle, and a curved stripe behind the dot next the lower border. Wings a little smoke-tinged, the veins brown.

Length to tip of abdomen $2\frac{3}{4}$ mm.; expanse of wing-covers 10 mm.

Four specimens, all in less mature condition, were collected by Mr. Smith.

COTYLECEPS, gen. nov.

Form of *Bothriocera*, excepting in the shape of head. Vertex shorter than the eyes, but projecting nearly the full length in front of them, with the surface deeply sunken and the sides correspondingly and acutely elevated, having the line of contact with the front indented; the front long, deeply scooped out, with the sides foliaceous, expanded and then tapering to the tip of the epistoma, the carina of the middle much lower than the sides, point of junction between front and epistoma indented and occupied by an ocellus, epistoma with a low and thick carina; cheeks broad, somewhat foliaceous, excavated above the eyes; rostrum reaching to the posterior coxæ. Pronotum very short,

saddle-shaped, deep-seated, and upturned in the middle, regularly wide on the sides extending downwards. Mesonotum with the dorsal shield long and narrow, carinate in the middle, with the lateral carinate margins spreading apart posteriorly, with the scutellum large, triangular, depressed in the middle. Posterior tibiæ with a stout spur below the middle, and the principal one at tip thick and long. Wing-covers gradually and almost symmetrically widening towards the tip, the tip almost bluntly rounded, with the inner arc a little narrower than the outer one; veins of the middle of apex straight, bounding long and narrow areoles, one on either side of the four middle ones forked, those of the upper extremity curved outwards; middle longitudinal nerve with two curved forks near its tip. Wings with the veins divided into two short forks at the upper extremity and a longer fork next inward of the former, and with two cross-veins forming a chevron beyond the middle. The abdomen is somewhat prismatic, with the central ridge prominent; the venter moderately wide and not quite flat.

COTYLECEPS DECORATA, sp. nov.

Dull fulvous brown, paler beneath. The cheeks, sides, and summit of the front and middle of the vertex dark piceous. Eyes dark brown. Antennæ pale fulvo-testaceous, the basal joint longer than wide. Pronotum and sides and shield of mesonotum fulvous, darker on the sutures and across the base; the scutellum paler. Rostrum and legs pale testaceous. Wing-covers whitish testaceous, extensively marked with pale smoke-brown; border of the membrane broadly smoke-brown, connected on the lower border with a large interrupted spot which connects on its inner end with broken spots continued across the disk, the apical veins being white break the continuity of the apical border; field of both corium and membrane sparsely flecked, the three transverse veins of the costal area broadly marked, the inner one connected with a ragged band which nearly crosses the corium; nodal spot long and darker than the uneven series which forms a sort of loop behind it; the membrane beyond this point has three united spots anteriorly and a roundish one adjoining the posterior end of the loop next the margin; wings smoky, with the veins darker. Tergum paler at tip and along the lateral submargin.

Length to tip of abdomen 4 mm.; expanse of wing-covers 13 mm.

This delicate little insect bears some resemblance to some of the more strongly marked Phryganidæ of the genus *Hydropsyche*. A few specimens were secured at Kingstown and at other points up to an altitude of 500 feet above the sea.

AMBLYCRATUS, gen. nov.

Form robust, with depressed abdomen, which is fully one-half wider than the breadth across vertex and eyes. Head broad, almost

truncated as viewed from above, the front of the vertex is, however, a little angular at tip and obliquely carinated each side, with the middle partly carinated, depressed; front curved outwards before the tip of vertex, long and wide, a very little wider than, and curved at the origin of, the epistoma, with the middle line strongly carinated and the lateral margins sharply reflexed, the epistoma tapering and continuing the gentle curve of the sides with the carina and reflexed margin; cheeks wide, long, excavated, with the reflexed borders rising prominently above the eyes. Basal joint of antennæ subglobose as usual. Pronotum very short, the front edge upturned, with the sides curved, but little wider, and ending below in a slight enlargement. Mesonotum a little wider than the length including the scutellum, the sides expanded triangularly, but the medial shield narrow, almost square, carinated on the middle, and bounded by a carina on each side, the scutellum acutely triangular, a little reflexed like the wings of the preceding segment. Wing-covers narrow, a little bent at tip, with the inner apical corner angular, shorter than the upper which is curved; costal area long and narrow, expanded at tip in contact with the ovate nodal cell, its middle a little acute where the anastomosis of the first fork occurs, the first ulnar areole starting from a fork beyond the middle of the costal area and extending in a slight curve to the nodus, the second one starts in a fork near the base, and continuing sends off a vein from a blunt fork on a line with the nodus, at this point three oblique cross-veins form the base of the middle anteapical areoles; the apical areoles longer, narrow, seven in number, of which the anterior one is very short and triangular, while the posterior one is very long and wide and ending in an acute, somewhat curved angle. Posterior tibiæ destitute of any apparent spine.

AMBLYCRATUS PALLIDUS, sp. nov.

The body relatively broader, but the wing-covers narrower, and not obliquely expanding towards the tip as in the foregoing genera. Colour pale fulvous, tinged with pale testaceous. Head almost square, as seen from above, with the blunt triangle of the tip of vertex on a line with the front of eyes, powdered with white; the eyes brown, somewhat bean-shaped; antennæ pale fulvous; summit of front and a faint band across its middle dusky; epistoma also a little dusky. Rostrum reaching to behind the posterior coxæ. Wing-covers whitish yellow, or very pale fulvous, with the costal vein mostly brown, the nodal spot whitish, and the apical anterior margin of the membrane pink; veins of the ulnar areole, an oblique streak at base, the posterior border and two lines on the clavus, the posterior edge of the membrane and the coarse vein next inwards, and a broad uneven spot across the apical half of the membrane smoke brownish; the transverse veins of membrane whitish. Underside and legs testaceous, with a tinge of plumbeous; tip of the venter dark brown. Disk of mesonotum and surface of tergum dark brown.

Length to end of abdomen $3\frac{1}{4}$ mm.; expanse of wing-covers 9 mm.

Six specimens of this peculiar insect were taken at Kingstown and various other localities on the island,

CIONODERUS, gen. nov.

Long and narrow, with the wing-covers carried flat as in *Plectoderes* and *Catonia*. Vertex short and nearly square, a little wider than long, with the apex bluntly angular, the margins recurved all around, and the depressed middle carinated, the posterior margin widely sinuated; eyes large, prominent, placed obliquely; front wide, prominently curved above, separated from the vertex by an impressed line; middle carinated, sides a little expanded in the curve next the epistoma, the epistoma narrowing to the apex; cheeks wide beneath the eyes, the curve carried above the eyes short. Pronotum with the anterior lobe excavated, protracted into the base of the head like a semicircular valve, with a small tubercle at base, the sides carried down in narrow belts. Mesonotum convex, a little longer than wide, with the tubular middle narrowly oval, margined by carinate lines, and with a carina on the middle; the scutellum triangular depressed in the middle, acuminate. Wing-covers long, bent inwards at tip, opaque, the clavus long, acutely narrowing towards the tip, with the fold near the inner border narrow and nearly parallel with the border; costal area long, widening towards the base of the first forked vein, and narrowed from thence by the curve of that vein; discoidal members of the antepical series of areoles very long, those near the costal border strongly curved, the apical series shorter and mostly curved. Ocellus placed, as in the preceding genus, at the anterior angle of the eye and beneath it.

CIONODERUS LINEATUS, sp. nov.

Chiefly brown above, yellowish testaceous beneath. Head pale, a little clouded across the middle of the front and upon the epistoma; the lateral carinate edges, the front border and carina of the vertex brown. Pronotum marked with brown at intervals. Mesonotum brown, with two middle stripes, the sides, and the borders of the scutellum pale yellowish. Legs mostly pale yellowish, with the tip of tibiæ and outer surface of tarsi a little dusky. Wing-covers darker brown on the basal two-thirds, including the clavus, but with the veins mostly yellowish; the costal area, including the nodus and the space at fork of radial vein, besides the apex of the clavus and the transverse veins of the membrane, also yellowish. Tergum dark brown.

Length to tip of wing-covers $5\frac{3}{4}$ mm.; width across middle of mesonotum $1\frac{1}{2}$ mm.

Two fairly complete, and one mutilated, specimens were secured on the island.

VINCENTIA, gen. nov.

Form of *Civius*, Latr., and with clear wing-covers and wings. Head but a very little longer than the eyes; the vertex very narrow, with the carinate borders only a little higher than the eyes, bounding a deeply sunken surface, and converging to an angle in front; the front rapidly expanding in a curve to the middle, with the sides tapering to an acute point at apex of epistoma, the summit of the middle carina a little expanded, the lateral margins foliate-carinate. Pronotum very narrow in the middle, deeply triangularly emarginate like the base of the head and entering so deeply as to be almost concealed by the occiput and eyes; the marginal edge fitting against the eyes carinated. Dorsal shield of mesonotum about twice as long as wide, with straight carinate sides and triangular ends, the middle incompletely carinate and with a short ridge each side; the scutellum short, acute, set upon a broader semi-circular flap which is protracted each side anteriorly out to the base of the wings. Wing-covers broad, of nearly equal width throughout, transparent, with the veins granulated as in *Civius*; the costal areole long and wide, of nearly equal width throughout, followed by a narrow and very acute nodal areole, six antepical areoles, of which the upper and lower are longer than the others and are bounded by a fork of the veins on the middle of the corium; the membrane terminating in a nearly regular curve, the apical series of areoles almost symmetrical, the four following the nodus placed obliquely. Wings with the areole next to the first apical one large, bounded at base by a transverse vein, separated at tip by a short triangular areole, the four following areoles triangular at base. Posterior tibiæ with two stout spurs before the middle and another at tip, besides the crown of small teeth. Abdomen broad, depressed, carinately elevated on the tergum.

VINCENTIA INTERRUPTA, sp. nov.

Chestnut-brown, paler beneath, fulvous anteriorly. Front tinged with dull fulvous; the carinate lines, sides, upper part of cheeks, and the rostrum pale yellowish. Eyes brownish black, large, suborbicular, bordered with pale yellow, deeply emarginated below. Pronotum mostly pale yellow, darker on the sides, but with all the margins yellowish. Mesonotum fulvous on the disk, bordered with yellowish; the discal carinate lines partly yellowish. Mesosternum, including the flat coxæ, with a broad brown band which corresponds with the brown area of the epistoma; pleural line marked by series of angular, scale-like, pale spots. Scutellum pale at tip and on the sides. Legs clouded with smoke-brown, pale on the knees, at the ends of the tibiæ, and on the ends of the tarsal joints. Wing-covers with two coalescing brown spots at base, two similar ones on the middle, also a diagonal nodal spot; the transverse veins, ends of the apical veins, costa, and two or three streaks on the posterior marginal vein brown, remainder of this vein, base of nodal spot, and veins around it pale yellowish.

Veins of the wings mostly brown. Borders of segments of the abdomen slenderly white, both above and below, exterior edge of the connexivum also whitish. Tip of the venter densely loaded with white flocculent matter.

Length to end of abdomen 5 mm.; expanse of wing-covers $12\frac{1}{2}$ mm.

Only a single specimen of this neat-looking species was secured on this occasion.

This genus resembles *Mnemosyne*, Stål, in the shape of the vertex, but differs in the type of pronotum as well as in the venation of the wing-covers.

CHEILOCEPS, gen. nov.

General form of *Issus*, with the wing-covers longer than wide, a little tapering towards the tip, and the tip obliquely truncated. Head narrower than the pronotum, the vertex subquadrangular, a little longer than wide, scooped out, the prominent keeled margins projecting a little beyond and above the eyes, the middle line with a slight keel; the base of head triangularly emarginated. Eyes very large, longer than wide. Front of medium width, growing wider next the clypeus, with each side raised into a liguliform relief which ends below in a button, middle of the front depressed, oval, carinate on the middle line; clypeus placed diagonally, convex on the middle, carinated, with the lateral margins curved near the base, acutely tapering towards the tip; the base prominent, and a little excavated on the margin. Pronotum a little shorter than the head, but wider than the diameter across the eyes, triangular, let into the base of the head, slender behind the eyes, but expanding beneath them. Mesonotal shield obtriangular, wider than long, with a transverse carina at base, from which a short carina runs back on either side; the scutellum small, acute. Wing-covers moderately narrow, the costal membrane at base wide but not abruptly expanded, longitudinal veins carried through to the tip and curving forward there; transverse veins few, mostly placed on the apical third, the radial vein forked and curved at tip; the costal areole crossed by numerous veins beyond the middle. Wings long and wide, cleft, with few and mostly large areoles, the accessory membrane a little longer than the abdomen without the *genitalia*. Posterior tibiae armed with two spines. Abdomen broad, a little depressed, interruptedly carinate on the middle of tergum.

CHEILOCEPS MUSCA, sp. nov.

Fulvous, paler on the wing-covers. Middle of the vertex and ground-colour of the front and clypeus pale smoke-brown; lateral margins of the vertex tinged with rufous, the other margins and carina pale testaceous; the raised sides of the front yellowish irregularly spotted with dark brown, and the underside of the buttons especially brown; a whitish band crosses the upper portion

of the front, and the middle carinate line is interruptedly brown and yellow; the base of clypeus, including the carina, margins, and oblique striæ, also yellowish. Rostrum extending to the posterior coxæ, pale testaceous banded with brown. Eyes dark brown, with the reflexed socket pale yellow. Antennæ pale fulvous, placed on the rim of the socket next below the eyes. Pronotum pale fulvo-testaceous, tinged with rufous in front and on the sides; the disk granulated each side on a large brown spot, the propleura with a brown dot near the origin of the wing-cover. Mesonotum darker on the shield, and this part is divided into areas by two yellowish loops on the sides and a line along the middle; the scutellar portion pale yellowish. Pleural segments pale yellow above, mostly margined with black. The coxæ bright red, excepting the base of the posterior pair; legs dull yellowish, the anterior femora faintly striped with brown, and the tarsi brown at tip. Wing-covers translucent, with five brown dots, and a few obscure cloudy spots at base, near the posterior border, and next the tip. Tergum a little dusky near base and at tip. Veins of wings black.

Length to tip of venter 6 mm.; expanse of wing-covers 15 mm. Only two specimens of this remarkable insect were secured.

PERSIS LINEATA, Fabr.

Specimens of this delicate little species were collected on both sides of the island by Mr. H. H. Smith.

PATARA GUTTATA, Westw.

Three specimens were secured on this island.

PATARA ALBIDA, Westw.

Only a single specimen was taken. It was found on the windward side of the island.

CENCHREA DORSALIS, Westw.

Four specimens of this insect were collected. Three were secured near Kingston at an altitude of 1500 feet, and the fourth was found on the windward side of the island.

CENCHREA EXQUISITA, sp. nov.

More robust and with wider wing-covers than *C. dorsalis*; yellowish white, darker on the upper surface of the body. Vertex a little narrower in front, projecting slightly in front of and above the eyes, the margins strongly elevated, curved and ribbed on the inner side; front long, parallel-sided, white, but more or less yellow above, deeply concave, the clypeus margined and terminated with black; rostrum reaching nearly to the posterior coxæ; the inferior cheeks very wide, pale yellow. Pronotum a little projecting into the curve of the head, short, broadly excurved behind, with the sides broadly expanded and concave; mesonotum a little

tawny, convex, carinate on the middle and impressed each side thereof, the scutellum with an orange spot at the base, a large reddish one next the inferior apical angle, a long white spot back of the disk marked with four black dots, a faint streak on the costa beyond the middle, a more distinct short band nearer the apex, another, more oblique, next the apex, and a few traces on the apex more or less black, the veins mostly white; in front of the white spot one or two black specks are usually present. Wings clear white. Legs ivory-white, the anterior tibiæ and tarsi a little dusky. Underside and venter whitish, powdered; tergum dull yellow, powdered with white.

Length to end of abdomen 3 mm.; expanse of wing-covers 9 mm.

Six specimens of this brightly marked species were collected by Mr. H. H. Smith, near Kingstown and in other parts of the island.

PROSOTROPIS, gen. nov.

Robust, in form of body similar to *Cercopis*. Head with the eyes hardly one half as wide as the pronotum, the vertex a little longer than wide, feebly carinated each side, the eyes large, round, and closely enclosing the vertex; the front long and wide, the sides broadly curving and distinctly carinated, the middle line also carinated; clypeus broad at base, with thick margins there, then acutely tapering to tip, the surface less prominent than the front; rostrum reaching to the middle coxæ. Antennæ stout, moderately short. Pronotum transverse, a little shorter than the head, a little arched, the base almost straight. Mesonotum large, convex, much wider than long, with the scutellum triangular and almost equally long, and the margins recurved. Wing-covers wide, obliquely narrowing towards base on the inferior side; veins few and mostly wide apart; the costal area wide, long, and growing wider towards the tip, which is bounded by a transverse oblique vein and crossed farther inwards by two veins which are oblique in the opposite direction; the apical series of areoles begins beyond the nodus with a large subtrapezoidal areole with a curved inner vein, the next outwards smaller with the inner angle acutely curved, the following one is triangular, shorter and smaller; the middle areole is very long and narrow, after this is a triangular areole, followed by a very long, curved, nearly wedge-shaped one, and on the inferior margin the areole is curved triangular, with the point directed against the tip of the clavus; the anteapical series is designated by two cells with curved veins. Abdomen broad, moderately convex, wider than thick.

PROSOTROPIS DECORATA, sp. nov.

General colour fulvous, marked with large areas of dark brown. Head rather close set against the thorax, moderately convex, dull fulvous, the base prominently reflexed, with two indented points

in front of the elevation; front dark brown, the clypeus and rostrum pale piceous; eyes convex, dark brown; antennæ wax-yellow. Pronotum dull pale brown, placed almost erect; mesonotum prominently convex, blackish brown, paler on the pleural portion. Scutellum almost equilateral triangular, pale yellow, depressed in the middle. Wing-covers transparent, with a tinge of yellow behind the middle, milk-whitish on the apical third; the veins pale brown, but interrupted with white on the apical division, an irregular brown stripe runs out from the base to near the middle, a double spot forms a bent band running diagonally back from the costa, and a curved triangular spot of the same colour runs inward from the apex, the nodal end of the band is bounded inwardly by a white vein. Wings obscure hyaline, with brown veins. Legs and posterior portion of the sternum yellowish. Tergum fulvous at base, the post-dorsolum pale yellow, from thence to behind the tip piceous; venter flat, bright red, marked with series of dark brown callous spots, the margin also dark brown, which colour extends upon the genital segment and its attachments.

Length to tip of venter 3 mm.; expanse of wing-covers $5\frac{1}{2}$ mm.

Three specimens, mostly in poor condition, were collected on the island.

Fam. FLATIDÆ.

ORMENIS CONTAMINATA, sp. nov.

Obscure whitish yellow, or pale fulvous, covered with white powder when mature. Vertex almost truncated, the middle carina of front constituting a little angle at the summit, the lunate pronotum capping the vertex almost to its front border; front barely wider than long, subquadrate, depressed, with the sides curved and the lower angles a little rounded; clypeus long, prominent, triangular, with a broad blunt carina on the middle line, acute at tip; the rostrum reaching behind the posterior coxæ. Mesonotal shield covering nearly the whole upper surface of the mesothorax, the anterior portion forming a long rounded lobe, and the posterior division constituting a blunt triangle, terminated by a very short scutellum; the disk oval, bounded on the sides by carinate lines, and having a carina on the middle. Wing-covers nearly parallel-sided, the width across the tip only a little more than across the middle of the clavus with the corium; the veins very numerous, those of the disk nearly all forked, the apical ones mostly straight, parallel and simple, the series on the border of the inferior apex diagonal, those of the costal area numerous and straight; the postcostal area is occupied in great part by fine reticulated veins; the clavus is covered with coarse granules, another set occupies the basal angle of the costal area, and the inner middle base of the corium is set with a patch of finer granules; wings either white or smoky, with darker veins. Abdomen compressed.

Length to tip of abdomen 5-6 mm.; expanse of wing-covers 15-16 mm.

Ten specimens were collected at various localities on the island.

This is an exceedingly variable species as regards colour and pattern of marking. One specimen is mostly white, with a band of fuliginous on the apex of the wing-covers. Between this and the variety with a large triangular dark spot on the apical half of the pale tawny wing-covers there is a series of several degrees of expanse of the dark colour. The wings vary from pure white to dark lead-colour. I do not find any important differences to separate this from a species which is quite common in northern Mexico, Arizona, Texas, and California, and which approaches *O. mesochlorus*, Walker, from Cuba; but this latter has broader wing-covers and a longer, more prominent vertex.

SCARPOSA, gen. nov.

Robust, wing-covers decumbent, nearly twice as long as wide, broadly arcuate from base to behind the middle, then sinuated and narrower to the apex. Head viewed from above wider than long, the vertex with an excavation which widens anteriorly, each side of this is an indentation bounded exteriorly by the arched carinate margin; cheeks nearly flat, extended widely in front of and below the eyes, grooved above next the reflexed margin, callous next below; front subtrapezoidal, barely wider than long, longitudinally tumid each side, impressed in the middle, grooved against the raised lateral margins, a little sinuated above, with a narrow callosity at the summit; clypeus long, acutely tapering, the margins reflexed. Eyes small, globular, prominent. Antennæ short, bluntly rounded at base. Pronotum semicircular, but little longer than the vertex, sinuated at base, with the lateral flap triangularly produced against the eye. Mesonotum wide, a little wider than long, almost flat, the anterior margin bluntly triangular; the sides rectangularly triangular, and posteriorly longer, more converging, and forming a triangle with the short scutellum; the middle line obsoletely carinate, and the margins of the disk thick and set with two callous knobs. Basal margin of clavus convexly inflated, with the submargin carinately crested, and together with the inner margin forming an arch, the clavus behind this tapering narrowly back to the base of the membrane, the surface more or less granulated to near the tip; corium with wide and long areas which are crossed by mostly indistinct reticulations behind the middle, but with distinct oblique and irregular veins beyond the middle of the postcostal area, veins of the wide costal area numerous and moderately oblique, almost the entire surface sprinkled with callous granules; veins of the subquadrangular membrane curving in various directions and forming crowded and irregular cells, the apical series composed of subquadrangular areoles of larger size which are narrower above the middle. Posterior tibiæ grooved, armed with two stout spines below the middle. Abdomen blunt, subconical.

SCARPOSA TUMIDA, sp. nov.

General form of *Ormenis*, but tumid at the base of the wing-covers, with the costal region expanded in a wide curve, greenish. Head above with an obscure brown broad stripe which is carried back upon the mesonotum, the lateral raised margius highly polished, pale fulvous; front with a brown cloud above, pale testaceous below and including the clypeus; rostrum reaching to the posterior coxæ. Pronotum greenish yellow on the sides: mesonotum dull testaceous each side, with the two callosities dark brown. Beneath and legs tawny yellow. Wing-covers greenish, the inner ridge and margin of the clavus, besides a streak near its tip and the granules near the tip, blackish; corium in the angle behind base of costa, a spot at and broad stripe beyond on the the inner area, a broad less distinct band across the middle including the veins, a bent diagonal stripe running back from the lower angle of the apex, the almost truncate margin of the apex, one or two spots near the upper angle, and the granules of the costal area black or dark brown. Outer border of the venter red.

Length to tip of abdomen 5-5½ mm.; length to tip of wing-covers 7-8 mm.

This genus comes next to *Cyarda* in its general features, but the venation of the wing-covers is more open, varied, and simple, and the narrowed apex is not much protracted.

Two specimens were secured on the island. One of these lacks the broad band across the middle of the wing-covers. The acute knob near the base of the radial area is more prominent in the female than in the male.

ACANONIA SERVILLEI, Spin.

Three specimens, of somewhat smaller size than the average of those from Florida and Cuba, were collected on the leeward side of the island.

Fam. JASSIDÆ.

XEROPHLŒA VIRIDIS, Fabr.

Five specimens were taken on the island by Mr. H. H. Smith.

This and the following species were determined by Mr. W. H. Ashmead.

XEROPHLŒA GRISEA, Germar.

Four specimens of this insect were captured on the island. These insects are so variable, and our knowledge of them is so insufficient at present, that there is no settled standard by which to gauge the species. I am in doubt as to this being the true *X. grisea* as described by Germar, and figured by Burmeister in his 'Genera Insect.' The figure is that of a species with more acute and longer head, and with an absence of most of the markings present in the species from St. Vincent,

GYPONA ALBOSIGNATA, sp. nov.

Dark straw-yellow, remotely marked with small spots, streaks, and flecks of brown; form of *G. irrorella*, Spangb. Vertex short, bluntly rounded; ocelli placed a little before the middle and nearer the eyes than to one another; the front margin reflexed, with the submargin depressed, the surface minutely and obsoletely wrinkled; the occiput indented each side on a line with the ocelli; front longitudinally depressed. Eyes brown. Rostrum testaceous, reaching behind the anterior coxæ. Pronotum more than twice as long as the vertex, transversely wrinkled, with an arc of flecks and short streaks behind the anterior margin, a cloudy stripe each side of middle, and a darker oblique spot near each posterior angle brown. Wing-covers pale testaceous, with orange veins, a tinge on the base of the costa, a brown ragged spot beyond its middle, a series of small flecks on the first ulnar areole, several larger ones next the apex; the transverse veins, a bent line on the inferior base of the membrane, and a spot at base and near the apex of clavus, besides its posterior edge, also brown, the apex of the principal areole and the tip of the clavus milk-white. Wings smoky, with dark brown veins. Scutellum with a brown triangular spot in each basal angle and some irregular streaks on the middle (the spots and marks partly or entirely absent, or coalescing, in some specimens). Body beneath and the legs pale testaceous, more or less powdered with white, the bases of tibial spines marked with a brown dot; apex of tibiæ and sometimes the ends of tarsal joints, and nails, brown. Tergum more or less brown, occasionally black on the three or four posterior segments.

Length to end of abdomen, ♂ 6, ♀ $7\frac{1}{2}$ mm.; to tip of wing-covers $7\frac{1}{2}$ – $8\frac{1}{2}$ mm. Width of pronotum 2– $2\frac{1}{2}$ mm.

Three specimens were taken on the island. Two of these are females and one is a male. The male is paler and much less marked with brown than the others. This species inhabits the coastal plain of the United States and is found as far north as Cape Ann, Massachusetts. It is likewise variable in the United States.

GYPONA ANGUSTATA, sp. nov.

Narrower than usual, pale apple-green when fresh, pale yellow when dried. The vertex narrowly, subacutely rounded at tip, and moderately depressed, about two-thirds the length of the pronotum; the ocelli rufous, placed before the middle and a little farther apart than distant from the eyes; surface obsoletely wrinkled. Pronotum transversely wrinkled, hexagonal, the anterior margin bluntly semicircular and carried between the eyes. Underside and legs whiter than the upper surface, with the nails and apex of tarsi brownish. Wing-covers narrowing towards the tip, the basal portion obsoletely punctate near the veins, the basal areole sometimes with a minute black dot at base; veins mostly straight and simple, margin of costal areole whitish;

the wings milk-white. Last ventral segment of the female much longer than the preceding one, the tip rounded and slightly sinuated each side; last ventral segment of the male about twice as long as the penultimate one, subtruncate at tip, with the sides cut a little diagonal; the inferior appendages not much longer than the last segment, coarsely punctate, slightly grooved.

Length to tip of venter, ♂ $4\frac{1}{2}$, ♀ $5\frac{1}{4}$ mm.; to tip of wing-covers 6-7 mm.

Five fairly perfect specimens are in the collection made in St. Vincent by Mr. H. H. Smith.

This species is smaller and narrower than the *G. angulata*, Spangb., to which it bears much resemblance, besides the fact that in this new species the head is longer and the ocelli are nearer the anterior margin. It appears almost exactly like *G. placida*, Uhler, but in that species the last two ventral segments of male are long and of nearly equal size, and the upper genital attachments are abruptly narrowed beyond the middle, become acute at the tip, and are hairy, and not punctate.

TETTIGONIA (PROCONIA) RUBRICOSA, sp. nov.

Form of *Proconia circumducta*, Sigt. Carmine-red, the general form tapering posteriorly. Head orbicularly tumid, polished, varying from piceous through red to pale fulvous; front long, tumidly convex, having a few indented points superiorly; the eyes large, brown, and prominent, the surface at their inner angle indented; the occiput carinated on the margin and depressed before it; clypeus tumidly convex, distinctly separated from the front by the impressed line at base. Pronotum large, polished, wider than long, convex, strongly advanced in a broad curve upon the head, the submargin depressed; colour fulvous, paler in front, sometimes rufous and clouded posteriorly; sternum and pleural segments pale yellow, sometimes tinged with brown, powdered with white. Legs pale brownish yellow, with the spines, tip of tibiæ, and apex of tarsi, including the nails, brown. Scutellum tawny or red, acuminate; the underlying dorsal segment dark, bordered with testaceous. Wing-covers narrow, tapering, curving to an acute tip, bright red, spread with blue, which omits the base, borders, veins, and tip; cells of the membrane large, long, and few; wings smoke-colour, with the veins darker. Abdomen red, slenderly tapering, with a pale blue band at apex of the last tergal segment; last ventral segment of female broadly sinuated, with the outer corners acutely triangular; the same segment of male truncated.

Length to end of abdomen 6-7 mm.; width of pronotum 2 mm.

Eight specimens of this brilliant species were taken near Kingstown at altitudes ranging from 1300 to 2500 feet above the sea.

TETTIGONIA (PROCONIA) FASTIGIATA, sp. nov.

Head wide, more triangularly curved at tip than in the preceding species; ground-colour black above, pale yellow beneath. Vertex

highly polished, convex in the middle, transversely impressed at base, black with a yellow tip and a broad yellow band across the middle; front yellow, oblique, convex, polished, separated from the clypeus by a deep suture, the clypeus short, tumidly convex, pale testaceous, the rostrum also testaceous, stout, reaching to the middle coxæ. Pronotum hardly longer than the head, transverse, moderately convex, the lateral margins a little oblique, curved, the anterior margin bluntly curved and carried nearly half the length of the eyes into the base of the head; the colour black with a broad lunate yellow band behind the anterior submargin, the posterior margin feebly sinuated. Scutellum equilaterally triangular, subacuminate, bordered with yellow. Legs pale testaceous; the spines, tip of tibiae, and end of tarsi brown. Wing-covers with three long yellow stripes, besides a cuneiform spot near the tip, outside of which is a transverse curved large spot, and the superior apex broadly and obliquely covered with yellow, which spreads from the costal area; the costal margin reddish; veins slender, forming few and large areoles near the tip. Abdomen strongly tapering; tergum bright red, sometimes fulvous at tip; the last ventral segment hardly longer than the preceding one, hardly sinuated; inferior genital valves uniting to form a long cornute appendage, coarsely punctate, set with stiff bristles, and curved down on the acute tip.

Length to end of abdomen $5\frac{1}{2}$ –6 mm.; width of pronotum mm.

Six specimens of this showy species were secured near Kingstown and on both sides of the island. The specific name was suggested by the rod-like pack of stripes on the wing-covers. These organs are blunter than in the preceding species, and the wings are smoky brownish, paler on the anterior margin, and the veins are darker.

TETTIGONIA (DIEDROCEPHALA) SAGITTIFERA, sp. nov.

Form of *D. flaviceps*, Riley, sage-green above, pale greenish yellow beneath. Vertex with the sides a little rounded, the apex triangular, with the immediate tip a very little blunt; colour pale orange, with an irregular whitish spot around the black ocelli connected with an oblique stripe running forward to meet its fellow at the apex of the arrow-shaped black spot on the tip of vertex; base with a pair of small white spots on the middle, space near the antero-lateral border with three small spots, and the supra-antennal plate also white; front oblique and convex, dusky, dotted with pale yellow, the very summit smooth whitish; clypeus small, convex, pale testaceous; the rostrum reaching to the middle coxæ, brown at tip. Pronotum shorter than wide, bean-shaped, a broad lobate pale spot in front on each side, connected in the middle by a band of the same colour, and carrying a line of dark brown dots near the anterior border, the posterior border a little emarginate in the middle; the surface closely rugulose. Scutellum yellow, with a black spot at each basal angle, and sometimes two minute

dots on the depressed middle. Wing-covers slightly tapering, narrowly rounded at tip, with the veins and margins yellow, the apex more broadly dull yellowish; wings smoke-brown, with the veins darker. Tergum blue-black, pale at base, yellow on the sides, at tip, and on the edges of some of the segments; venter bright yellow posteriorly; last ventral segment longer than the preceding one, a little wider behind, truncated.

Length to end of venter, ♂ $3\frac{1}{2}$, ♀ 4 mm.; width of pronotum $1-1\frac{1}{4}$ mm.

Numerous specimens of this insect were taken in various parts of the island. This species varies in the size and form of the black dot on the front of vertex and in the number of yellow marks on the same. Occasionally the upper border of the front is also slenderly yellow.

TETTIGONIA HERBIDA, Walk.

More than thirty specimens of this bright green species are in the collection from St. Vincent. This species is equally common in the islands of Cuba and Trinidad; but we have not yet seen specimens of it from the mainland of South America.

SCAPHOIDEUS STIGMOSUS, sp. nov.

Pale fulvous; form similar to *S. scalaris*, Van Duz., but with a longer and wider head, and antennæ nearly as long as the wing-cover. Vertex a little longer than its width between the eyes, almost flat, very pale fulvous, with a series of brown dots around the anterior submargin and some less regular ones on the middle, occasionally with two or three ivory-white dots before the middle; front irregularly clouded with pale brown, bounded above by a slender dark brown line. Clypeus broad, bluntly rounded, marked with a brown subapical spot; the rostrum reaching to the middle coxæ. Eyes with a dark brown band below. Antennæ dark brown, paler at base. Pronotum triangularly sublunate, well advanced into the deeply sinuated vertex, the surface minutely scabrous, transversely wrinkled, polished, dotted with pale yellow anteriorly, and minutely speckled with the same colour behind the middle; the posterior angles subacute, a little produced, the posterior margin slightly sinuated. Scutellum with a dark brown spot in the basal angles; the disk a little marbled with brown. Wing-covers marked with three brown spots on the inner margin of the clavus, each of which has an acute white spot at the tip; veins white interrupted with brown, margins pale; the costal margin has a series of broader white streaks adjoining it inwardly, four large apical cells pale at base, bounded by brown veins, the apex a little dusky; wings smoky, with dark brown veins. Beneath and legs pale yellow, the tibiæ somewhat marked with brown; the tarsal joints, nails, and spots at origin of the tibial spines dark brown; the spines pale brown. Last ventral segment of the female deeply notched, the valves of ovipositor set with long, brown, stiff bristles; tergum blackish, with pale edges to the segments and a pale tip.

Length to end of venter $3\frac{1}{4}$ mm., to tip of wing-covers 5 mm.; width of pronotum 1 mm.

Five specimens, all females, were secured on the island. One was taken at an altitude of 1500 feet above the sea, and two were collected at Kingstown.

DELTOCEPHALUS VIRGULATUS, sp. nov.

Form short, robust; head bluntly subconical, black, striped with green, polished; the wing-covers coriaceous throughout, wide at tip and bluntly rounded. Head of about the same length as pronotum, the vertex hardly separated from the front, depressed at base, where it is crossed by a pale green band; front convex, dull black above, green across the end, and there forming a part of the broad band which covers all but the tip of the clypeus and tip of the wide cheeks; rostrum orange, reaching to the middle coxæ. Pronotum transverse, convex, curved over the head to before the middle of the eyes, minutely wrinkled, crossed by a green band which covers most of the surface and sometimes includes the posterior margin. Scutellum dull black, transversely incised, pale at tip. Legs black, the posterior tibiæ with pale spines, and the tarsi more or less pale. Pleural segments more or less marked with pale green. Wing-covers thick, coarsely scabrous, and absolutely punctate, so broadly marked with green as to give predominance to that colour, the black shows as a broad apical border; a wide angular spot curving apically from the costal border, a streak near tip of inner areole, an oblique stripe at outer border of clavus, a spot at base of corium, and a streak at base of clavus, all black; wings smoky. Venter black, the edges and outer border of segments pale greenish; last segment of male sinuated, genitalia blunt.

Length to tip of wing-covers 3- $3\frac{1}{2}$ mm.; width of pronotum 1 mm.

Eight specimens of this peculiar form were taken on the island. It is quite variable in the proportion and distribution of the green colour upon the upper surface, and especially on the wing-covers. Specimens of one or other of its several varieties have been sent to me from Cuba, Florida, Eastern North Carolina, Central Illinois, and Para, Brazil. I have also found it myself on plants in low grounds in Eastern Virginia, New Jersey, and on both shores of Chesapeake Bay, Maryland, in July and August.

DELTOCEPHALUS RETRORSUS, sp. nov.

Fuscous or blackish, more parallel-sided than the preceding species. Head short, obtusely triangular; vertex depressed at base, tumidly elevated at tip, pale brownish yellow, with a slender black stripe on the middle at base; an indented black spot each side behind next the eye, an interrupted band across the middle and a narrower one next the tip also black, the middle and interval between these bands and the very tip pale green; front convex, black, minutely rough, with about three series of pale

minute specks; cheeks partly bordered each side with pale green; rostrum pale greenish, short, black at base. Legs pale yellowish, the inside and tip of posterior tibiæ and bands on the tarsal joints brown. Wing-covers smoke-fuscous, pale on the centre of all but the apical cells; costal border ivory-yellow, including two short black stripes near its tip, following which the superior apical cell is black, and the next below only a little less deep black, the inferior one still paler, these three bounded on the sides by brown veins, the other veins pale yellow; areoles of the clavus each with a dark brown stripe on the inner border; wings faintly smoky, with dark veins. Pronotum short, broadly curved in front, polished, minutely wrinkled, marked anteriorly with a transverse series of yellow dots, sometimes provided with five incomplete pale stripes; the dorsolum bordered with a square yellow lineation, followed directly behind by the triangular scutellum margined also with yellow. Abdomen brownish or black, the segments generally with pale edges, and the male usually darker than the female. The superior genital pieces of the male nearly triangular, the inferior ones uniting to form a longer subacuminate triangle bordered with yellow; the valvular segment at base of these is triangular and a little curved on the sides; genital pieces all armed with brownish long bristles.

Length to tip of wing-covers $2\frac{1}{2}$ -3 mm.; width of pronotum $1-1\frac{1}{4}$ mm.

Five specimens of this odd little species were taken at various places on the island. It is a common North-American form which is distributed all the way from Florida, along the coastal plain, to northern New Jersey. It varies much in depth and extent of colour, and somewhat in the degree of bluntness of the tip of vertex. In Maryland it rests upon the leaves of bushes and occurs from August to October in sunny situations.

DELTOCEPHALUS CUNEATUS, sp. nov.

Robust, brownish or black, marked with pale green above. Form similar to the preceding species. Vertex bluntly rounded, a little longer than wide between the eyes, yellowish green, marked anteriorly with two large black dots, and farther back with two minute ones; eyes large, not prominent, but extending far back to complete the deep sinus of the occiput; front long, moderately convex, with two broad stripes, which occupy most of the width or are interrupted by oblique bands; clypeus with a black dot each side; the rostrum short, fulvous. Pronotum very short, lenticular, pale green, with an anterior impressed blackish submargin. Scutellum bluntly carinated on the middle, marked with black before the middle, and twice indented there. Coxæ mostly black; femora and tibiæ dull testaceous, obscurely striped with brown, the tarsal joints more or less marked with brown. Pleural segments blackish, partly marked with green; wing-covers a little curved on the costal margin; the clavus pale green with a brown edge on both margins, the costal area also green, this colour some-

times overlapping the adjoining areole, the interval between this stripe and the clavus, including the subapical area, smoke-brown; the apex paler, with the veins darker. Wings almost transparent, with the veins pale brown. Abdomen black, the segments edged and bordered exteriorly with greenish white. Inferior genital segment of the male triangular and swollen.

Length to tip of wing-covers $2-2\frac{1}{2}$ mm.; width of pronotum $1-1\frac{1}{4}$ mm.

Twelve specimens were taken at two or three places on the island.

DELTOCEPHALUS ACUMINATUS, sp. nov.

Pale greenish, moderately robust. Head short, subconical, with the sides curved; vertex a little longer than wide, marked with two deltoid black spots next the tip, near the base are two very minute black dots: eyes long and very oblique; front oblique, convex, crossed by two series of slender, curved, brown lines, the lower margin, a spot on the tylus, and some specks on the cheeks also brown. Pronotum short, green, and a little rugose, yellowish in front, the submargin with two black dots, each side of which are some minute specks, the anterior margin moderately curved, the posterior margin subtruncate, and the lateral margins broadly oblique and curved. The scutellum a little scabrous, impressed in the middle, pale greenish, with a slender point at the apex. Wing-covers pale greenish yellow, translucent, narrow, moderately curved; the veins prominent, mostly straight, with long areoles, the costal areole and the adjoining one, besides the clavus, remotely punctate. The legs pale dull yellowish, with the bases of the tibial spines, tip of tibia, and bands upon the tarsi brown. Sternum black, the pleural segments more or less margined and marked with pale green. The venter broadly black at base, this colour narrower and interrupted by green on the posterior segments; tergum covered by black at base, with the segments very slenderly edged with pale yellow, the apical half pale straw-yellow, dotted with black on the middle and submarginal lines.

Length to tip of wing-covers $3-3\frac{1}{4}$ mm.; width of pronotum 1 mm.

A few specimens, females, were brought from the island by Mr. Herbert H. Smith. The wings in this species are milk-white.

DELTOCEPHALUS COLONUS, sp. nov.

Similar to the preceding species in form, but with a blunter head, marked with two black dots placed far apart, and usually with two minute dots on the tip. Colour smoky yellowish or dull straw-yellow. Vertex hardly triangular, the sides bluntly curved; front long, pale testaceous, marked with a dagger-shaped middle line which extends from the tylus to the summit of the front, each side of this is a series of about eight narrow black bands, of which the upper is broader and arcuated; the exterior margin, edge of the middle line, and sutures also black, or brown; the cheeks

sometimes marked with a few brown specks. Pronotum short, longer than the vertex, transversely rugose and impressed, bluntly rounded in front, the posterior margin short and subtruncate. Scutellum bluntly triangular, hardly acuminate, with a few impressed dots scattered over the surface. Wing-covers almost transparent, a little curved, the veins thick and pale yellow, the general surface a little dusky, with a darker streak behind the pale yellow costa, the veins long and regular. Wings a little smoky, with brown veins. Legs pale dull yellow, with the tarsal joints and nails brown. Sternum and venter dark, often black in the male, with the sutures and margins pale; genital segments of the female pale yellowish; tergum mostly black, with a band of yellow next the tip, and the edges of the segments pale; genital valve triangular, subacute at tip, the two following pieces uniting to form a long, subconical segment with a rounded tip, and armed with stiff, brown bristles.

Length to tip of wing-covers $3\frac{1}{4}$ – $3\frac{1}{2}$ mm.; width of pronotum $1\frac{1}{4}$ mm.

Numerous specimens of this species were collected on the island by Mr. Smith. Both of the foregoing species belong to a little group of forms which abound on the marshes and low meadows of the Southern United States, and which deviate more or less in venation and form of wing-covers from the types of *Deltocephalus*. They can hardly be referred to *Cicadula*.

AGALLIA USTULATA, sp. nov.

Form of *Agallia quadripunctata*, Prov. Mostly brown above, and black beneath. Vertex short and blunt, pale yellowish, with a large black dot each side, a brown interrupted stripe near the eyes, a line widening anteriorly on the middle, the anterior margin and a line running inward to the ocellus, also brown; front suboval, convex, with a divided fulvous margin above, the lateral margins and two short stripes near the clypeus also tawny; the middle line of cheeks, interruptedly, a triangular border at base of tylus, and the rostrum pale testaceous. Pronotum moderately short, with the sides very oblique and the anterior margin bluntly curved, coarsely punctate; the colour yellowish with a brown transversely oval line on the middle, this is divided by a dagger-shaped stripe which has an oblique streak each side of it, each side of the oval ring two oblique lines are protracted towards the outer margin, also brown, the posterior margin is often black. Scutellum black, long and acute, pale towards the tip, each basal angle with an ivory-yellow dot. Sternum and pleural pieces black, the latter margined with pale fulvous. Legs pale testaceous, striped with dark brown, the tarsi banded with piceous. Wing-covers mostly brownish, testaceous on the outer half of corium and entire membrane, the veins dark brown; clavus margined on both sides with pale testaceous, which is more or less interrupted by the brown of the areoles; middle of corium partly crossed by a brown band which

bends forwards exteriorly and admits an ivory-white short streak; near the base are several small pale spots and streaks, and on the membrane a few whitish oblong spots, ends of the three veins touching the claval margin broadly ivory-white. Abdomen black or brown, with the edges of the segments, lateral margins, and apical segments pale. Genital valve of male very short, bluntly rounded at the corners, the following segments composing a ligulate cover, rounded at the tip.

Length to tip of wing-covers $3-3\frac{1}{4}$ mm.; width of pronotum $\frac{3}{4}$ mm.

This is a variable species, in which all the specimens at hand differ from each other in amount and pattern of marking; the paler specimens lack the brown ring on the vertex, and have that colour broken up in various figures.

AGALLIA NIGRICANS, sp. nov.

Black, polished, the tip of head a little more triangular than in the preceding species. Vertex with a large black spot each side, a line on the middle, two smaller dots below the upper ones, the inner border against the eyes, and a band on the forward margin also black; front suboval, black, marked with traces of pale fulvous on the middle and sides, tip of clypeus also fulvous; cheeks moderately wide, bordered and striped with pale fulvous; rostrum piceous, paler at tip. Pronotum much longer than the vertex, obsoletely and minutely scabrous, feebly impressed each side, black, sometimes with two large fulvous spots at base, and usually with two small diagonal ones on the middle. Scutellum short, with a spot in each basal angle and the margin ivory-white. Legs more or less black, the coxæ, knees, base and apex of femora, and underside of posterior tibiæ pale fulvous. Wing-covers black, or brownish with the veins darker, the costal vein pale yellow; veins of the clavus and base of corium a little interrupted with fulvous, origin of the corium and a short stripe a little farther beyond ivory-white, the two middle apical cells longer than wide, subquadrangular. Abdomen mostly black, robust and not tapering in the male.

Length to tip of wing-covers $2\frac{1}{2}-2\frac{3}{4}$ mm.; width of pronotum $\frac{3}{4}$ mm.

Eight specimens of this dull-coloured species were collected on the island.

AGALLIA FASCIGERA, sp. nov.

Pale yellow, robust, with a wide head and somewhat wedge-shaped form. Vertex short, wide and blunt, with a black dot each side of the middle and sometimes a line in the centre; the front about one-half longer than its upper width, situated below the seat of the antennæ, scarcely separated from the vertex, pale soiled yellow, stained brown above and on the margins; superior margin regularly curved, terminating each side in an angle above the

antennæ; cheeks moderately broad, pale; apex of tylus brown; rostrum long, pale testaceous, brown at tip. Pronotum transverse, broadly curved on the sides posteriorly, the anterior margin very broadly curved, the fine punctures almost effaced; the posterior submargin with a dark line which ends each side in a black oblique spot, the anterior margin sometimes fuscous. Scutellum faintly scabrous, a little clouded with brownish. Legs pale dull testaceous, the tarsi piceous at tip. Wing-covers light yellow, occupied by slender oblique black, usually complete, lines; the apical margin dark brown, with the two middle areoles long and straight; the veins yellow; wings a little smoky, the veins dark brown. Abdomen pale yellow, the tergum broadly black on the middle. Male genital valve long, collar-like, the following pieces liguliform. Length to tip of wing-covers $3\frac{3}{4}$ -4 mm.; width of pronotum $1\frac{1}{8}$ mm.

Three specimens were captured in St. Vincent. One was found in the mountain forest in July at an altitude of 2000 feet, another occurred at 3000 feet, and the third was secured in June.

AGALLIA CAPITATA, sp. nov.

Head wider than in the preceding species; colour yellow, spread and striped with dull black. Vertex blunt, moderately short, marked with two small black dots parallel to the ocelli, and the ocelli placed on larger dots which are connected by a dark brown band, a longitudinal streak crosses the band; front long, sinuated each side below the curved summit, almost covered by a blackish stripe which keeps on to the tip of the tylus; superior cheeks yellow, inferior ones narrow, blackish; rostrum fulvo-testaceous, long and slender. Pronotum transverse, distinctly punctate, yellow, crossed near the base by a black band between two large spots; the middle line black, wrinkled; the anterior margin broadly curved, narrowly brown. Scutellum dull yellow, brown on the middle and at base, the tip long acuminate. Legs pale testaceous, with a black speck at the knees, and the tip of tarsi brown. Wing-covers smoke-black, with a long subfusiform hyaline stripe occupying nearly half the width of the corium from the costa inwards and extending from near the base to next the tip and surrounded by a black border including the costa, the remaining surface with long narrow yellow lines, including the veins and sutures; wings smoky; with the veins darker. Disks of the sternal and pleural pieces blackish. Venter pale yellow; the tergum black, with the base, tip, and edges of the segments yellow. Male genital valve long, collar-like, with the attached pieces slender, long, cerciform.

Length to tip of wing-covers $3\frac{1}{2}$ mm.; width of pronotum 1 mm.

Only two specimens of this peculiar species were brought from the island. It bears some resemblance to the preceding species, but, apart from the broader form and peculiar markings, it may be at once recognized by the slender process at the tip of its scutellum.

AGALLIA ALBIDULA, sp. nov.

Pale fulvous, robust, with the head a little more convex than in *A. fascigera*. Vertex of medium length, convex in front, either pale fulvous, or yellow tinged with green, obsoletely marked with testaceous spots, a brown dot on each side of the summit, on a line with the paler brown ocelli; surface sericeous, not punctate, obsoletely incised on the middle; front narrow and scarcely one-half longer than width of base, the summit distinctly triangular, the lateral basal angles triangularly produced, emarginated beneath this, middle with a pale spot near the summit, and a long oval pale spot inferiorly; superior cheeks dusky, spotted with yellow below the eyes, inferior cheeks yellow; tylus yellow, with a brown stripe on the middle; the rostrum long, slender, testaceous, piceous at tip. Pronotum transverse, of medium length, moderately convex, scarcely scabrous, faintly sericeous, pale testaceous, marked with a triangular pale brown spot each side, two dots near the front margin, a line on the middle, and sometimes two small spots near the humeral angles; the postero-lateral margins obliquely curved, the anterior margin regularly curved, causing the outer angles to be almost acute. Scutellum short, depressed and spotted on the middle, testaceous, with the tip acuminate. Legs dull testaceous, the apex of the tarsi, including the nails, piceous. Wing-covers faintly dusky; the veins, costal area, an angular mark on the tip of the basal areole, and a large oblong spot extending to the middle of the clavus yellowish white, the tip of this spot is bounded by a curved brown mark, the apical portion of the clavus dusky hyaline; base of the corium, two faint spots beyond the basal areole, two others on the middle, the apical margin, and the tip of the clavus pale brown; wings dusky, with dark brown veins. Tergum black on the disk and base; middle of venter brown. Genital valve of male triangular, the following pieces wide at base, tapering toward the end.

Length to tip of wing-covers $3\frac{1}{2}$ - $3\frac{3}{4}$ mm.; width of pronotum 1 mm.

More than a dozen specimens, including incomplete states of coloration and texture of wing-covers, were taken at various localities on the island.

Besides the foregoing species, the collection from St. Vincent includes several small *Jassidae*, related to *Typhlocyba*, *Chlorita*, *Alebra*, and *Zygina*, which cannot be satisfactorily determined for want of access to the types of the various authors who have described these insects.